

# CHAMBERS' EDINBURGH JOURNAL

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## COMMON ERRORS.

THERE are a number of proverbial notions which either square so well with some principle in our self-love, or appeal so forcibly to some of our besetting prejudices, or appear from some other cause so exceedingly plausible, that they are never brought forward without apparently producing conviction, while in sober truth they are either highly questionable, or decidedly erroneous.

When a man, for instance, says, "Away with all refinements—I take the broad common-sense view of the question," every body immediately prepares to listen to him as a kind of oracle. He may, after that, speak for half an hour in the most vulgar and irrational jargon, without a single reference to the principle of the argument; and if he only takes care not to offend any of the prepossessions of his hearers, he will bear away the palm from the most acute reasoner. The cause of this is, that when you speak of common sense, you speak of a thing which all imperfectly educated and ignorant people (unfortunately the great majority of common audiences) think they possess by intuition, though it is in reality but a composition of the prejudices of each particular person; and, flattered by their sense being considered as sufficient to give judgment, they are tempted into thinking themselves convinced, and pronounce accordingly.

Whenever a man happens to act rather absurdly, or perhaps somewhat reprehensibly, and is conscious of it, you are sure to hear him exclaim, "Well, I acted according to my conscience." If a man can only convince himself that he was ruled by this secret monitor, he is satisfied, because he has always been told to act according to conscience, and invariably hears conscientious people commended both by friends and opponents. Other people are satisfied, too, and think no more of the error they were once disposed to censure. "Oh, he acted according to his conscience: there is no more to be said." Now, this would be all very well, if conscience were one uniform prompter of good, and preventive of bad, in the breasts of all men. But conscience is a quality which every man possesses only in a certain extent, in proportion as he may have been originally gifted with it, and as he may have cultivated it through life. An individual may have a conscience so very small, or so very dull, that it forms no obstacle to the worst indulgences: he may be so very stupid in regard to all speculative questions, that the conscience he thinks he acts upon is only a blind supposition of the truth. In these cases, conscience is no excuse. The most flagitious criminal might make it a plea for arrest of judgment; the most unenlightened of human beings might sit down upon it in self-satisfied ignorance; the bigot might adopt it as a sanction for a war against his species. Nine-tenths of all the worst mischief, negative and positive, that ever afflicted the world, is traceable to conscience. The duty of man is to improve those faculties which enable him to think and act correctly. He must make his conscience a good conscience, and then, but then only, will he be entitled to honour in acting upon it.

Akin to this error is one which makes *meaning well* an excuse for every thing. Nay, some not only excuse all kinds of follies and mischiefs by telling themselves and others that they mean well, but they make it a regular boast as a primary rule of conduct, and take not the least care for any thing else. They will deliberately go on from day to day in a course injurious to both themselves and others, and, reposing indolently upon their good intentions, neglect all fair opportunities of advantage, all feasible natural means of accomplishing their ends, and finally perhaps allow the

broad wheel of ruin to come over them, without making an effort to get out of the way. There is also a great sect of philanthropists, who, taking no pains to ascertain the true means of promoting human happiness, and possibly prepossessed in favour of many things which are adverse to it, form, in reality, through the very respect that is paid to their well-meaning impenetrability, the greatest existing obstacles to the object they profess to have in view. Men can never be sufficiently vigilant in guarding against this easy palliation of error and prejudice; their duty is to see that they both mean well, and take the proper means for forming a sound judgment and constructing a correct rule of action.

*An apology wipes away all offence.* This is another abused popular notion. There is of course no denying that a forgiving disposition is not only commendable, but commanded, in all men. So long as human nature is liable to error, we must allow an opportunity of repentance, and, on the showing of that, be prepared to pardon. But great care must at the same time be taken that an easy access to pardon do not lead to a facility in error; otherwise one great check upon human conduct will be lost. Men must not be allowed to become heedless of their doings, in the certainty of escaping the worst possible consequences by a few soft words. They must not be allowed to suppose that the apology or profession of repentance is a real and full expiation of their error—a thing which may be fairly set against the other, as money is set against goods in a ledger. They should be made to know that something else is required for expiation—the generous forgiveness of the injured party; and that, in getting this, they incur a debt—one which may never be paid, and which may trouble them for ever. There is unfortunately a human imperfection in the matter of forgiveness as well as in the matter of error or injury; and though the offended party may profess to be satisfied, he will be very apt to recollect the affair with a feeling disadvantageous to the offender. No apology, moreover, can do away with the right which all men have to judge of their fellow-creatures from their actions. Deeds repented and unrepented all alike go to create that estimate which we form of all we know. It is clearly necessary, then, for more reasons than one, that we never allow ourselves to trust recklessly to the apothegm that an *apology wipes away all offences*.

## ANIMAL MECHANICS.

WHEN we see a mountebank twisting his form in every imaginable shape, walking on his hands with his heels aloft in the air, standing on his head, or rolling himself up in a circle and trundling off like a hoop, we only laugh at the fellow's grotesque pranks, and wonder at his singular agility and suppleness of lith and limb. Our admiration is seldom, if ever, carried the length of reflection on the truly ingenious and wise construction of a frame which is susceptible of being so tortured and twisted without being put out of joint or of going wrong in the process. Yet, not only the feats of the well-practised clown on the stage, but the ordinary exhibitions which every one makes in the simple phenomena of walking, sitting, or standing, may lead us into a profitable train of reflection on the wonderful capabilities of the human body, when in a state of health, and not injured by evil habits or training.

There is scarcely a part of the human body, or an action which it performs, or an accident that can befall it, or a piece of professional assistance that can be given to it, that does not furnish illustration of some

truth in natural philosophy. We shall here only touch upon the mechanism of our frames, or the science of animal mechanics, as it is called, leaving some of the other curious wonders of the system to form the subject of another paper. One of the most striking beauties in our mechanism is the arched form of the skull, or cranium, which is constructed in the way most calculated to give strength. The brain, which lies within, is in its nature so tender, or susceptible of injury, that slight local pressure disturbs its action. Hence a solid covering, like the skull, was required, with those parts made stronger and thicker which are most exposed to injury. An architectural dome is constructed to resist one kind of force only, always acting in one direction, namely, gravity; and therefore its strength increases regularly towards the bottom, where the weight and horizontal thrust of the whole are to be resisted; but, in the skull, the tenacity of the substance is many times more than sufficient to resist gravity, and therefore aids the form to resist forces of other kinds, operating in all directions. When we reflect on the strength displayed by the arched film of an egg-shell, we need not wonder at the severity of blows which the cranium can withstand.

Through early childhood, the cranium remains, to a certain degree, yielding and elastic; and the falls and blows so frequent during the lessons of walking, &c. are borne with impunity. The mature skull consists of two layers, or tables, with a soft diploe between them, the outer table being very tough, with its parts dovetailed into each other, as tough wood would be by human artificers; while the inner table is harder and more brittle (hence called vitreous), with its edges merely lying in contact, because its brittleness would render dovetailing useless. A very severe partial blow on the skull generally fractures and depresses the part, as a pistol bullet would; while one less severe, but with more extended contact, being slowly resisted by the arched form, often injures the skull by what is correspondent to the horizontal thrust in a bridge, and causes a crack at a distance from the place struck, generally half way round to the opposite side. Sometimes, in a fall with the head foremost, the skull would escape injury, but for the body, which falls upon it, pressing the end of the spine against its base.

Looking next at the jaws, especially the lower, which have an immense mechanical power, both in man and other animals, from the effect of certain muscles: here we find the teeth, which appear almost as if they were severally the fruits of distinct miraculous agencies, so difficult is it to suppose a few simple laws of life capable of producing the variety of form so beautifully adapted to purposes which they exhibit. They constitute an admirable set of chisels and wedges, so arranged as to be most efficient for cutting and tearing the food, and, with their exterior enamel so hard, that, in early states of society, teeth were made to answer many purposes for which steel is now used. It seems, however, as if the laws of life, astonishing as they are, had still been inadequate to cause teeth, cased in their hard enamel, to grow as the softer bones grow; and hence has arisen a provision more extraordinary still. A set of small teeth appear soon after birth, and serve the child until six or seven years of age; these then fall out, and are replaced by larger ones, which endure for life; the number being completed only when the man or woman is full grown, by four teeth, called wisdom teeth, because they come so late, which rise to fill up the then spacious jaw.

The spine or back-bone, has, in its structure, as much of beautiful and varied mechanism as any single part of our wonderful frame. It is the central

pillar of support, or great connecting chain of all the other parts; and it has at the same time the office of containing within itself, and of protecting from external injury, a prolongation of the brain, called the spinal marrow, more important to animal life than the greater part of the brain itself. We shall see the spine uniting the apparent incompatibilities of great elasticity, great flexibility in all directions, and great strength, both to support a load and to defend its important contents. First, with respect to elasticity: The head may be said to rest on the elastic column of the spine, as the body of a carriage rests upon its springs. Between each two of the twenty-four vertebrae, or distinct bones, of which the spine consists, there is a soft, elastic intervertebral substance, about half as bulky as a vertebra, yielding readily to any sudden jar; and the spine, moreover, is waved, or bent a little, like an italic *f*, as seen when it is viewed sideways; and, for this reason, also, it yields to any sudden pressure operating from either end. The bending might seem a defect in a column intended to support weight; but the disposition of the muscles around is such as to leave all the elasticity of the bend and a roomy thorax, without any diminution of strength. Next with regard to flexibility: The spine may be compared to a chain, because it consists of twenty-four distinct pieces, joined by smooth rubbing surfaces, so as to allow of motion in all directions; and a little motion, comparatively, between each two adjoining pieces, becomes a great extent of motion in the whole line. The articulating surfaces are so many, and so exactly fitted to each other, and are connected by such number and strength of ligaments, that the combination of pieces is really a stronger column than a single bone of the same size would be. The strength of the spine, as a whole, is shown in a man's easily carrying upon his head a weight heavier than himself, while each separate vertebra is a strong irregular ring, or double arch, surrounding the spinal marrow. The spine increases in size towards the bottom, in the justest proportion, as it has more weight to bear.

Now we come to the ribs: Attached to twelve vertebrae, in the middle of the back, are the ribs, or bony stretchers of the cavity of the chest, constituting a structure which solves, in the most perfect manner, the difficult mechanical problem of making a cavity with solid exterior, which shall yet be capable of dilating and contracting itself. Each pair of corresponding ribs may be considered as forming a hoop, which hangs obliquely down from the place of attachment behind; and so that, when the fore part of all the hoops is lifted by the muscles, the cavity of the chest is enlarged. The muscles which have their origin on the ribs, and their insertion into the bones of the arm, afford us an example of action and reaction being equal and contrary. When the ribs are fixed, these muscles move the arm, and when the arm is fixed, by resting on a chair or other object, they move the ribs. This is seen in fits of asthma, &c.

The shoulder-joint is remarkable for combining great extent of motion with great strength. The round head of the shoulder-bone rests upon a shallow cavity in the shoulder-blade, that it may turn freely in all ways; and the danger of dislocation from this shallowness is guarded against by two strong bony projections above and behind. To increase the range of motion to the greatest possible degree, the bone called the shoulder-blade, which contains the socket of the arm, slides about itself upon the convex exterior of the chest, having its motion limited only by a connection, through the collar-bone or clavicle, with the sternum.

The scapula, or blade-bone, is extraordinary as an illustration of the mechanical rules for combining lightness with strength. It has the strength of the arch, from being a little concave, and its substance is chiefly collected in its borders and spines, with thin plates between, as the strength of a wheel is collected in its rim, and spokes, and nave.

The bones of the arms, considered as levers, have the muscles which move them attached very near to the fulcrum, and very obliquely; so that, from working through a short distance comparatively with the resistances overcome at the extremities, the muscles require to be of great strength. It has been calculated that the muscles of the shoulder-joint, in the exertion of lifting a man upon the hand, pull with a force of two thousand pounds.

The elbow-joint is a correct hinge, and so strongly secured, that it is rarely dislocated without fracture.

The fore-arm consists of two bones, with a strong membrane between them. Its great breadth, from this structure, affords abundant space for the origin of the many muscles that go to move the hand and fingers; and the very peculiar mode of connection of the two bones, gives man that most useful faculty of turning the hand round into what are called the positions of pronation and supination, exemplified in the action of twisting, or of turning a gimlet.

The many small bones forming the wrist have a signal effect of deadening, in regard to the parts above, the shocks or blows which the hand receives. The annular ligament is a strong band passing round the joint, and keeping all the tendons which pass from the muscles above to the fingers, close to the joint. It answers the purpose of so many fixed pulleys for directing the tendons; without it, they would all, on action, start out like bowstrings, producing deformity and weakness.

The human hand is so admirable, from its numerous mechanical and sensitive capabilities, that an opinion at one time commonly prevailed, that man's superior reason depended on his possessing such an instructor and such a servant. Now, although reason, with hoofs instead of fingers, could never have raised man much above the brutes, and probably could not have secured the continued existence of the species, still the hand is no more than a fit instrument of the godlike mind which directs it. Look at the beautiful contrivance of the thumb. What could we have done without thumbs? Look at the different lengths of the fingers, by which arrangement we can exert mechanical force in the most effective manner. Observe the ingenious contrivance of the nails, by which we are enabled to pick up the most minute objects with the points of our fingers. Be so good as remark the softness and pliability of the palm and ball of the hand, as well as the insides of the fingers. Without that peculiarity the hand would have been a poor mechanical agent. As it is, the bare hand often forms an instrument which cannot be rivalled by artificial tools. Without the aid of the soft bare palm, the engraver's art would be almost useless.

Pursuing our observations on the body, we have next to remark that the lower part of the spine is connected with the legs by means of a strong irregular ring of bone, called the pelvis, from a word signifying a basin. On the upper edge of this basin-like bone the spine rests, and from the sides of it the legs spring; the connection being by the hip-joint. It is evident that a broad bone was wanted here to connect the central column of the spine with the lateral columns of the legs; and a circle was the lightest and strongest. If we attempt still further to conceive how the circle could be modified to fit it for the spine to rest on, for the thighs to roll in, for muscles to hold by, both above and below, for the person to sit on, we shall find on inspection that all our anticipations are realised in the most perfect manner. The broad ring of the pelvis protects most securely the important organs placed within it.

The hip-joint exhibits the perfection of the ball and socket articulation. It allows the foot to move round in a circle, as well as to have the great range of backward and forward motion exhibited in the action of walking. When we see the elastic, tough, smooth cartilage which lines the deep socket of this joint, and the similar glistening covering of the ball or head of the thigh-bone, and the lubricating synovia poured into the cavity by appropriate secretaries, and the strong ligaments giving strength all around, we feel how far the most perfect of man's works falls short of the mechanism displayed by nature.

The thigh-bone is remarkable for its protections called throchanters, to which the moving muscles are fixed, and which lengthen considerably the lever by which the muscles work. The shaft of the bone is not straight, but has a considerable forward curvature. Short-sightedness might suppose this a weakness, because the bone is a pillar supporting a weight; but the bend gives it, in reality, the strength of the arch, to bear the action of the mass of muscle which lies and swells upon its fore part.

The knee is a hinge joint of complicated structure, and it claims the most attentive study of the surgeon. The rubbing parts are flat and shallow, and therefore the joint has little strength from form, but it derives security from the numerous and singularly strong ligaments which surround it. The ligaments on the

inside of the knees resemble, in two circumstances, the annular ligaments of joints, namely, in having a constant and great strain to bear, and yet in becoming stronger always as the strain increases. The line of the leg, even in the most perfect shape, bends inward a little at the knee, requiring the support of the ligaments, and in many persons it bends very much; but the inclination does not increase with age. The legs of many weakly-in-knee'd children become straight by exercise alone. This inclination at the middle joint of the leg, by throwing a certain strain on the ligaments, gives an increase of elasticity to the limb, in the actions of jumping, running, &c. In the knee, there is a singular provision of loose cartilages, which have been called friction cartilages, from a supposed relation in use to friction-wheels; but their real effect seems to be to accommodate, in the different positions of the joint, the surfaces of the rubbing bones to each other.

The great muscles on the fore part of the thigh are contracted into a tendon a little above the knee, and have to pass over, and, in front of the knee, to reach the top of the leg, where their attachment is. The tendon, in passing over the joint, becomes bony, and forms the patella or knee-pan, often called the pulley of the knee. This peculiarity enables the muscles to act more advantageously, by increasing the distance of the rope from the centre of motion. The patella is, moreover, a sort of shield or protection to the fore part of this important joint. The leg below the knee, like the fore-arm already described, has two bones. They offer spacious surface of origin for the numerous muscles required for the feet, and they form a compound pillar of greater strength than the same quantity of bone as one shaft would have had. The individual bones also are angular instead of round, hence deriving greater power to resist blows, &c.

The ankle-joint is a perfect hinge of great strength. There is in front of it an annular ligament, by which the greater part of the tendons, passing downwards to the foot and toes, are kept in their places. One of these tendons passes under the bony projection of the inner ankle, in a smooth appropriate groove, exactly as if a little fixed pulley were there.

The heel, by projecting so far backwards, is a lever for the strong muscles to act by, which form the calf of the leg, and terminate in the tendo achillis. These muscles, by drawing at it, lift the body, in the actions of standing on the toes, walking, dancing, &c. In the foot of the negro, the heel is so long as to be ugly in European estimation; and its great length rendering the effort of smaller muscles sufficient for the various purposes, the calf of the leg in the negro is smaller in proportion than in other races of men.

The arch of the foot is to be noticed as another of the many provisions for saving the body from shocks by the elasticity of the supports. The heels and the balls of the toes are the two extremes of the elastic arch, and the leg rests between them.

Connected with elasticity, it is interesting to remark how imperfectly a wooden leg answers the purpose of a natural leg. With the wooden leg, which always remains of the same length, the centre of the body must describe at each step a portion of a circle of which the bottom knob of the leg is the centre, and the body is therefore constantly rising and falling; while, with the natural legs, which by gentle flexure at the knee are made shorter or longer in different parts of the step as required, the body is carried along in a manner perfectly level. In like manner, a man riding on horseback, if he keep his back upright and stiff, has his head jolted by every step of the trotting animal; but the experienced horseman, even without rising in the stirrups, by letting the back yield a little at each movement, as a bent spring yields during the motion of a carriage, can carry his head quite smoothly along.

Such is a very slight sketch of some of the more remarkable of the mechanical contrivances in the human body, in which the niceness of the adaptation of parts to each other, and the lightness, yet the strength and flexibility of the materials, are alike astonishing. There is a bone, for instance, in one place, nearly as hard as iron, where, covered with enamel, it has the form of teeth, with the office of chewing and tearing all kinds of matter used as food. In the cranium, again, bone is softer, but tough and resisting; in the middle of long bones, it is compact and little bulky, to leave room for the swelling of the muscles lying there; while at either end it is large and spongy, with the same quantity of matter, to give a broad surface for articulation; and, in the spine, the bodies of the vertebrae, which rest on an elastic bed of intervertebral substance, are light and spongy, while their articulating surfaces and processes are very hard. In the joints, we see the tough, elastic, smooth substance, called cartilage, covering the ends of the bones, defending and padding them, and destroying friction. In infants, we find all the bones soft or gristly, and therefore calculated to bear with impunity the falls and blows unavoidable at their age; and we see certain parts remaining cartilage or gristle for life, where their elasticity is necessary or useful, as at the anterior extremities of the ribs. About the joints, we have to remark the ligaments which bind the bones together, possessing a tenacity scarcely equalled in any other known substance; and we see that the muscular fibres, whose contractions move the bones, and thereby the body—because they would have made the limbs clumsy even to deformity had

they all passed over the joints to the parts which they have to pull—attach themselves, at convenient distances, to a strong cord called a tendon, by means of which, like a hundred sailors at a rope, they make their effort effective at any distance.

#### DUKE DORGAN, A STORY OF IRISH LIFE.\*

"I SAY, messmate," said a young sailor who had just been landed from a ship in the offing of Loup Head, on the coast of Kerry, Ireland, addressing a countryman whom he overtook as he was making his way inland, "can you put me on the track of Carrigaholt?"

"The path is under your feet every step of the way," said the man; then, after pacing behind the inquirer in silence for a few minutes, he added, "Why, then, for one that puts out the foot so slow, I never seen any body carry so much of the road with them as you do, Mr Duke. Lord bless you!"

"You know me?" said the other, turning and fixing his eye on the speaker; then with an air of greater reserve, as he recognised the face, "and I ought to know you too; that face is Pryce Kinchela's, if you haven't stole it from him."

"I wish that was all I had belonging to Pryce Kinchela about me," said the man heavily.

"I am glad to see you, Pryce."

"I don't know whether you are or not, Duke; but I am glad to see you, although you may well doubt my word. I am an altered man since you left the country; and the foolish spite that you and I had then about Pennie MacLoughlen (the Silver Penny, as you called her—an the Luck Penny, as I called her) is no more than boy's play, to the cause I got since from others. That girl, Duke, was no Luck Penny to either you or me."

Here we interrupt the colloquy for a moment, to give some brief but necessary explanations regarding the relative positions and circumstances of the parties named, and thus place the end of the thread of the tale as it were in the hands of the reader.

Duke Dorgan, as the young sailor was called, was a rattling, warm-hearted Irishman, who had been attached, and the attachment was mutual, to Pennie MacLoughlen, from the days of their childhood. But her father, who was a wealthy farmer, disapproved of Duke's paying his addresses to his daughter, on the ground of the young man's poverty. With the view of removing this objection, Duke went to sea, trusting that fortune would enable him one day to return in such circumstances as would reconcile old MacLoughlen to his marriage with his daughter, and he was now returned, after an absence of six years, with a well-filled purse, the fruit of some valuable captures, and a Trafalgar medal dangling by a blue ribbon from one of his button-holes.

Pryce Kinchela, again, was, as he himself has hinted in the conversation with Duke just quoted, the rival, though not a fond one, of the young sailor in the affections of Pennie MacLoughlen. On the latter's going to sea, he also had proposed for Pennie, but had been rejected by her father with still more marked contempt and displeasure than his rival. This treatment, operating on a deep, designing, and vindictive mind, for which Pryce was remarkable, gave rise to a grudge on the part of the latter against old MacLoughlen, which nothing but the most deadly revenge could allay. For six long years, however, no opportunity had presented itself to Pryce for taking this revenge with safety to himself, but the lapse of this time had in no way abated his desire for it, nor in the least weakened his resolution to obtain it; and at the moment he met with the young sailor, his thirst for vengeance was as eager and remorseless as it had been on the day he was rejected as a suitor for Pennie's hand; but this feeling, with that cunning which also formed a remarkable feature in his character, he had carefully concealed from the knowledge of the world. No one knew that Pryce Kinchela entertained any resentment towards old MacLoughlen, for he never breathed it; still less did any one dream that he longed to immerse his hands in the old man's blood; and yet short of this the vengeance he meditated was not. But Kinchela was a quiet and a reserved man, and one who kept his secrets to himself.

Resuming the story, Pryce now proposed to the young sailor that they should sit down a little until he related to him how he had been persecuted, as he said, by old MacLoughlen, for having presumed to seek the hand of his daughter, and how he had, ever since that event, been losing ground in the world through the old man's resentment against him.

"And you take it so tamely?" exclaimed Duke, when Pryce had concluded the story of his grievances, and recollecting at the same time the treatment which he himself had met with at old MacLoughlen's hands. "I would have given the fellow a rope's end at any rate, if not round the neck, across the shoulders at least."

"Is that all you'd do to him?" asked Pryce, quietly.

"All! 'tis more, it seems, than you'd do—but you were ever and always a poor patient slob."

\* The above is a condensation of one of an excellent series of stories illustrative of Irish manners, entitled "Tales of the Munster Festivals." The original contains some traits of a supernatural character, which we have considered it better to exclude. The story is given with the view of pointing out the danger of condemning upon circumstantial evidence.

"Was I?" said Kinchela, with a smile, the expression of which, from his turning away his head while he spoke, it was evident he did not wish to give Duke an opportunity of speculating upon.

Shortly after this, Duke and Kinchela parted, but before doing so, they made an appointment to meet on the following day at the Bee-hive Inn at Carrigaholt, where Dorgan proposed to put up. Having parted, the latter prosecuted his journey until darkness overtook him, and compelled him to think of taking refuge in some intermediate place for the night, as he was uncertain, now that he had no longer the light of day to guide him, whether he was pursuing the right road; and a place capable of affording him this, at length presented itself. After some hours' smart walking, Duke found himself close upon a respectable looking farm-house; but as the hour was late, he felt a reluctance to disturb its inmates, and resolved, rather than give them that annoyance, to pass the night in the stack-yard. Having come to this resolution, he stepped over the stile; and after flinging down some hay on the ground, he stretched himself on it at full length, and placing the bundle he carried beneath his head by way of pillow, slept soundly until morning.

On awaking and rising from his humble couch, Dorgan pushed on for Carrigaholt, where he arrived in the afternoon, and took up his quarters at the Bee-hive, where he was joined in the evening by Kinchela, according to appointment. When he entered, Dorgan was enjoying himself over a tumbler of whisky-punch, in which he invited Kinchela to join him; but the latter for some time positively refused to drink, and was at length induced to fill up a glass only by perceiving that Duke was getting seriously displeased by his refusal. Dorgan and his guest now began to talk of local matters, Kinchela giving the former an account of all that had happened of any consequence in the neighbourhood since his entertainer had gone to sea, and answering all the queries which he put to him regarding the fortunes of those in whose histories he took any interest. This conversation naturally included old MacLoughlen and his daughter, regarding the former of whom, Dorgan, whose recollection of the slights cast upon him by the old man was now a little sharpened by the liquor he had drunk, spoke in no very measured terms. Pryce agreed in the justice of all he said on this subject, and even added some observations calculated rather to aggravate than assuage the young man's irritation; but suddenly changing his tone, he said in a gentle voice,

"But although he'd like to injure you surely, Duke, an' that greatly, I'd like I could prevail on you to forgive and forget. Bear and forbear, as we're commanded. He's an old man, an' you're a young one, an' it won't be long until the grave will draw a line between ye that you may wish to pass to make friends again, an' won't be able. So don't harbour any bad designs again' poor MacLoughlen, I beg o' you."

"Oh, I'll make the purse-proud old rogue know at any rate that—" At this moment Duke was interrupted by the unexpected intrusion of the clergyman of the parish, who, chancing to overhear his abuse of old MacLoughlen, stepped up to him, and proceeded to lecture him on the sin of harbouring resentments, and the wickedness of indulging in them, and particularly reprobated him for the language he had used when speaking of MacLoughlen, who he said was a singularly pious and charitable man. On concluding his remarks, the clergyman left the apartment, and was followed by Kinchela, who pleaded some business with the publican. Dorgan being left alone, soon after prepared for his night's rest, and was shown by the landlord into a double-bedded room, where, after bidding a good night to Kinchela, by whom he was rejoined, and who was to return to Loup Head early in the morning, he went to bed.

At midnight, Dorgan awoke with a violent headache, and thinking that binding his head with a handkerchief might afford him some relief, he stretched out his hand to the chair on which he had deposited his clothes, to procure the article he wanted, but to his surprise found that they were not there. He rose and groped about the room in the dark, but with no better success, and finally returned again to bed, in the hope that daylight would explain the mystery. On opening his eyes in the morning, his astonishment, whatever it might have been on missing his clothes, was exceeded by that which he felt on finding them in exactly the same place where he had laid them the evening before. Dorgan, however, made no remark on the subject to any one. He breakfasted quietly, settled his bill with his host, and immediately after set out to pay a visit to the object of his affections, from whom he had been now so long absent, old MacLoughlen's house being about a quarter of a mile distant from the village at which he had slept all night.

As Dorgan approached the house, he was surprised to see a number of persons collected round the door, although it was yet early in the morning; and he was still more surprised when he saw a woman rush out of the house tearing her cap from her head, and shouting the death-wail peculiar to the country. Filled with the most dreadful apprehensions by these ominous circumstances, Dorgan quickened his pace, reached the house, and rushed into it, without attracting any notice from the busy talking crowd with which it was thronged. Here a dreadful scene awaited him. Old MacLoughlen had been murdered during the preceding night, and his mangled and

blood-stained body lay stretched on a deal table in the centre of the kitchen. While Dorgan was yet lost in stupefaction and horror at the miserable spectacle before him, the coroner had arrived, and in an adjoining room, to which Duke also immediately repaired, had commenced his inquest. The first person examined was the deceased's niece, a little girl of about seven or eight years of age. "Well, my little darling," said the coroner to the child, "tell your story now, like a good girl. Don't be afraid; we are all your friends." "I will, sir," said the little girl; and she went on to state at length, and in a remarkably distinct manner, all the circumstances attending the murder; and amongst other particulars mentioned that the person who struck the fatal blows—there being a party of the murderers—said on going out after the deed had been perpetrated, "I owed that much to him a long while then." After adding some other particulars, the girl suddenly began to cry and tremble, as if labouring under some great anxiety. "I'll be kilt now entirely," she said, "for there's one o' the men that murdered uncle liss'n'en to me." A general exclamation of astonishment and alarm broke from the circle at this singular declaration. The doors were closed by the coroner's desire, and the girl was asked to point out the person whom she recognised, but terror for the consequence prevented her from complying with the request for some time. At length, however, the coroner succeeded in inspiring her with sufficient confidence to speak out. "There he is, then," said the girl, "standin' a-nigh the table, in the sailor's clothes."

Confounded beyond expression by the strangeness of the accusation, Dorgan could do nothing but gaze around him in wild amazement, until he was roughly seized upon and dragged before the coroner, who, after inquiring his name, taxed him, in consequence of some private information which he received from one of the bystanders, with entertaining a spite at the deceased. This Dorgan denied in the sense in which he saw the word was then used. He confessed to being displeased with the old man for having refused him his daughter's hand, but added that he came home now with an altered spirit, anxious to see and be reconciled to him.

"These were not, justice compels me to declare," said a voice behind Dorgan, "the sentiments which I heard you express towards him yesterday evening. In the parlour of the Bee-hive I heard the young sailor speak in terms of the vilest reproach against my poor murdered friend MacLoughlen." Dorgan looked over his shoulder, and beheld the clergyman with whom he had been speaking. "I cannot, nor am I anxious to deny that I did use such expressions," said he, a little confused, in spite of his consciousness of right, at the corroborative force which this unfortunate circumstance was likely to give to the mistaken testimony of the child; "but I spoke then under unusual irritation, and had been drinking." The unfortunate young man then called upon his host of the preceding evening, who was also present, to attest that he had not been out of his house during the whole of the night. But here again the evidence was against him. The landlord declared that he had heard him get up in the middle of the night, and walk for some time through his room; and added, that his wife had informed him that she had heard the door open and shut a short while before. In despair at thus finding the web of conviction gradually but strongly weaving around him by an inexplicable combination of circumstances, Dorgan as a last resource requested that Miss MacLoughlen might be immediately called, and from her evidence, as it had been stated by the little girl that she also was present when the murder was committed, he fully expected that the horrible mystery would be cleared up, or at least that his innocence would be established. On Miss MacLoughlen's entering the apartment, a dead silence took place, when Dorgan, after pausing a moment to summon all his presence of mind, advanced towards her, and taking her hand, while she seemed scarcely conscious of the action, in his, said gently, "It is a sad meeting that has been reserved for us, Pennie; but do you not know me?" When the distracted girl recognised her lover, which until now she had not, she uttered a shrill and piercing shriek, flung herself upon his neck, and hung, in a convulsion of mingled tears and sobs, around him. After the interchange of many expressions of affection and regard between the lovers, and when Pennie had been calmed and soothed by the endearing language of her lover, she was called upon to state what she knew regarding the dreadful transaction, and she proceeded to give a similar account of it to that which had already been given by the little girl. On being asked how the person was dressed who actually murdered her father,

"I think in a sailor's dress, like Dorgan's," she said carelessly, being yet unaware of the charge that was against him.

"You do not think it was I, then?" said Dorgan, smiling.

"You!" replied the girl, pausing as if to comprehend his question; "I should sooner say that it was his own act—or as soon—"

"Are you quite certain, Miss MacLoughlen, that this was not the man whom you withheld from the deceased?" She had been represented by the little girl as having struggled with the murderer, endeavouring to drag him from her father.

"Certain that Dorgan did not murder my father!"

Am I certain of my existence? I would stake a thousand lives, if I had them, that Dorgan would not have stirred one of the grey hairs upon his head, in enmity, if it were to make him master of the universe."

"My own sterling girl!" exclaimed Dorgan, delighted with her ready confidence; "when all are turned against me, I have at least one friend in you."

The coroner, however, could not overlook the strong circumstantial evidence that was against the suspected murderer, and he pressed Miss MacLoughlen to say whether she had not observed any peculiarity about him by which she could recognise him again.

Recollecting herself, she said that she had grasped something which was hanging to his coat, and brought it away with her in the struggle. "It is this," she said, and handed to the coroner Dorgan's Trafalgar medal. Dorgan lifted his hand to the breast of his coat in a state of mind which language is incapable of describing, and found, indeed, that this testimonial to his bravery was not there. The evidence borne against him by the medal was conclusive, but it was only so through his own act and deed. Conscious of innocence, he at once acknowledged that the medal was his, and resolved to abide all consequences rather than seek safety in evasion or falsehood.

"It is all a dream; a wild, improbable, impossible story!" exclaimed the distracted girl, who had thus unconsciously brought the guilt of murder home to her lover: "Deny it, Dorgan, and tell them they believe you." But Dorgan, resolved on keeping the straight path, whatever might be the result, adhered to the acknowledgment he had made. Dreadful was the struggle that ensued in the bosom of the unhappy girl, between her affection for her lover and the conviction of his guilt; for even she could no longer doubt that Duke Dorgan was the murderer of her father. A similar sentiment, but in a yet stronger degree, pervaded the minds of the coroner, the jury, and all who were present at the inquiry; and the consequence was, that the unfortunate young man was shortly after conveyed to jail, tried, and condemned to death. The day of execution arrived, and Duke Dorgan, surrounded with all the horrid pomp of the occasion, was brought on a car to the fatal tree. The hangman prepared to do his office, and was in the act of laying his hands on the collar of his victim, when a person who had violently forced his way through the crowd, called out in a loud and hoarse voice, "Come down, Mr Dorgan; come down off o' the car. Let him go, Mr Sheriff, dear; for the man is here that did the deed."

It was Kinchela. The miserable man—for it need not be stated, it is presumed, in more explicit terms, that he was the murderer of MacLoughlen, nor that he had perpetrated the deed in the clothes of poor Duke Dorgan, which he had abstracted for the purpose—had been unable to bear up against the horrors of a guilty conscience, and had now come at this critical moment at once to atone for his crime, and to prevent the additional guilt of a double murder falling on his devoted head, by permitting an innocent man to die in his place. It was some time, however, after this extraordinary announcement had been made, before the sheriff could be induced to believe Kinchela's statement, or give his consent to a delay in the execution of Dorgan. But the energy and earnestness with which the now contrite criminal persisted in asserting at once his own guilt and the innocence of Dorgan, at length prevailed. The execution was stopped; Dorgan was carried back to prison, and soon after liberated in due legal form; while the wretched Kinchela, after undergoing a formal trial, suffered the extreme punishment of the law for his atrocious crime.

The state of feeling of Pennie MacLoughlen while this fortunate turn was given to the fate of one whom she had so much respected, may be more easily conceived than described. One day, while sitting meditating on the circumstances, a note was brought to her by the clergyman. The blood rushed forcibly to her cheek, brow, and very finger-ends, and again recoiled, so as to leave her pale as marble, when she recognised the hand of Dorgan in the superscription. She quickly opened the note, and read as follows:—"MY DEAR PENNIE (for I may once more with a free heart call you by that name), it has pleased heaven to make good the word which I spoke on that unfortunate day, when I told my judges that I felt it within me that I should not die for a deed of which, the Lord knows my heart, and which is since proved, I was wholly clear and innocent. I have got my pardon—for it seems it is a form of law, that, when an innocent man is convicted, after suffering imprisonment, and all hardship, and anxiety, instead of his judges asking his forgiveness, 'tis he that has to get pardon from them, for being so unfortunate as to be condemned and very nearly hung in the wrong. Now, Pennie, this comes by the hand of Father Mahony, to tell you, that, of all things in the world, I admire and love you for your conduct on that day, and all through this dreadful business. I know well, my dear girl, how your heart is accusing you at this moment, but give no heed to such thoughts, I beg of you, and let them be as far from your mind as they are from mine, for you did your duty nobly; and Lord Nelson, my glorious and lamented commander, who little thought I'd be brought into such trouble on account of the victory he died in obtaining, could have done no more if he was in your place. I hope, therefore, you will show your good sense, and think no more of what is

past, but take this as the true feeling of his heart from him who is yours until death—DUKE DORGAN."

The heroic generosity with which her lover thus rose superior to all the petty resentments and jealousies which are incidental to the passion, even in the most vigorous and straightforward minds, sunk deeply into the heart of the young woman. Although the love which she felt for Dorgan was of that genuine and unaffected kind which is wholly a stranger to the delicate intricacies and refined difficulties which are attendant on the progress of this most capricious of affections, in the bosoms of those who boast a higher rank than hers, yet she could not but be keenly sensible that she had failed in one of its most essential qualities—an unbounded and immovable confidence. She raised her eyes, which were overflowing with tears of mingled shame and gratitude, towards the clergyman, when a creaking noise at the door attracted her attention. It opened—and Dorgan entered. Her agitation and confusion became now extreme, nor were they diminished when her lover advanced to her side with a respectful gentleness, and said,

"Pennie, you see we meet happier and sooner than we expected. I hope you'll be said by what I mentioned to you in the letter, and give me your hand now in token that all is forgotten."

"I give you my hand freely, Dorgan," the girl replied, still blushing deeply, "and bless your good, generous heart—but all cannot be forgotten. I may be friends with you again—but I never can be friends with myself as long as ever I live. There is a load now laid upon my mind that never will be taken off until the day I die."

Dorgan, assisted by his reverend friend, applied himself, and, as it proved, not unsuccessfully, to combat this feeling; the imagination of the reader will easily fancy the result. In a few days, Pennie MacLoughlen became the wife of Duke Dorgan, and the happiness of the pair was not the less complete from both having endured no small share of previous tribulation.

## JOSEPHINE.

### THE STORY OF THE OLD SHOES AND OTHER MATTERS.

AFTER the divorce of the amiable Josephine from her second husband, Napoleon, she retired to Malmaison, a pleasant country residence not far distant from Paris. Here, though retaining the title of empress, she lived in comparative seclusion till the period of her death in 1814. Some time before her lamented decease, she was visited by two young ladies of her acquaintance, whose interview with her is thus described by one of the party, in the *Memoirs of Josephine*:—"It happened to us to request of the empress to show us her diamonds, which were locked up in a concealed cellar. She yielded with the most willing compliance to the wishes of such giddy girls as we were, ordered an immense table to be brought into the saloon, upon which several of her maids in waiting laid a countless number of caskets of every form and shape. They were spread upon that spacious table, which was absolutely covered with them. On the opening of the caskets, we were perfectly dazzled with the brilliancy, the size, and the quantity of jewels composing the different sets. The most remarkable after those which consisted of white diamonds were in the shape of pearls, formed of pearls, perfectly regular, and of the finest colour; opals, rubies, sapphires, and emeralds, were encircled with large diamonds, which were, nevertheless, considered as mere mountings, and never taken into account in the estimation made of those jewels; they formed altogether a collection which I believe to be unique in Europe, since they consisted of the most valuable objects of that description that could be found in the towns conquered by our armies. Napoleon was never under the necessity of seizing upon objects, which there was always evinced the utmost anxiety to offer to his wife; the garlands and bouquets formed of such a countless number of precious stones had the effect of verifying the truth of the descriptions hitherto so fanciful, which are to be met with in the fairy tales. None but those who have seen this splendid collection can form an adequate idea of it.

The empress seldom wore any other than fancy jewels; the sight, therefore, of this exhibition of caskets, excited the wonder of most of the beholders. Her majesty greatly enjoyed our silent admiration. After having permitted us to touch and examine every thing at our leisure—'I had no other motive, she kindly said to us, in ordering my jewels to be opened before you, than to spoil your fancy for such ornaments. After having seen such splendid sets, you never can feel a wish for inferior ones; the less so, when you reflect how unhappy I have been, although with so rare a collection at my command. During the first dawn of my extraordinary elevation, I delighted in these trifles, many of which were presented to me in Italy. I grew by degrees so tired of them, that I no longer wear any, except when I am in some respects compelled to do so by my new rank in the world; a thousand accidents may, besides, contribute to deprive me of those brilliant though useless objects; do I not possess the pendants of Queen Maria Antoinette? and yet am I quite sure of retaining them? Trust to me, ladies, and do not envy a splendour which does not constitute happiness. I shall not fail to surprise you when I relate that I felt more pleasure at receiving an old pair of shoes, than at being pre-

sented with all the diamonds which are now spread before you.' We could not help smiling at this observation, persuaded as we were that Josephine was not in earnest; but she repeated her assertions in so serious a manner, that we felt the utmost curiosity to hear the story of this wonderful pair of shoes.

'I repeat it, ladies,' said her majesty; 'it is strictly true, that the present, which of all others has afforded me most pleasure, is a pair of old shoes of the coarsest leather; you will readily believe it when you shall have heard my story. I had set sail with my daughter Hortense, from Martinique in the West Indies, on board a ship in which we received such marked attentions, that they are indelibly impressed on my memory. Being separated from my first husband, my pecuniary resources were not very flourishing; the expense of my return to France, which the state of my affairs rendered necessary, had nearly drained me of every thing, and I found great difficulty in making the purchases which were indispensably requisite for the voyage. Hortense, who was a smart lively child, sang negro songs, and performed negro dances with admirable accuracy; she was the delight of the sailors, and in return for their fondness she had made them her favourite company. I no sooner fell asleep than she slipped upon deck and rehearsed her various little exercises to the renewed delight and admiration of all on board. An old mate was particularly fond of her, and whenever he found a moment's leisure from his daily occupations, he devoted it to his little friend, who was also exceedingly attached to him. My daughter's shoes were soon worn out with her constant dancing and skipping. Knowing as she did that I had no other pair for her, and fearing lest I should prevent her going upon deck, if I should discover the plight of those she was fast wearing away, she concealed the trifling accident from my knowledge. I saw her once returning with bleeding feet, and asked her, in the utmost alarm, if she had hurt herself. "No, mamma," "But your feet are bleeding." "It really is nothing." I insisted upon ascertaining what ailed her, and discovered that her shoes were all in tatters, and that her flesh was dreadfully torn by a nail.

'We had as yet only performed half the voyage; a long time would necessarily elapse before I could procure a fresh pair of shoes; and I was mortified at the bare anticipation of the distress my poor Hortense would now feel at being compelled to remain confined in my wretched little cabin, and of the injury her health might experience from the want of exercise. At the moment when I was wrapped up in sorrow, and giving free vent to my tears, our friend the mate made his appearance, and inquired with his honest bluntness what was the cause of our whimperings. Hortense replied in a sobbing voice, that she could no longer go upon deck, because she had torn her shoes, and I had no others to give her. "Is that all?" I have an old pair in my trunk; let me go for them. You, madam, will cut them up, and I shall sew them over again to the best of my power; every thing on board ship should be turned to account; this is not the place for being too nice or particular; we have our most important wants gratified when we have the needful." He did not wait for our reply, but went in quest of his old shoes, which he brought to us with an air of exultation, and offered them to Hortense, who received the gift with every demonstration of delight. We set to work with the greatest alacrity, and my daughter was enabled, towards the close of day, to enjoy the pleasure of again amusing the ship's company. I repeat that no present was ever received by me with more sincere gratitude. I greatly reproached myself for having neglected to make inquiries after the worthy seaman, who was only known on board by the name of James. I should have felt a sincere satisfaction in rendering him some service, since it was afterwards in my power to do so.'—Hortense afterwards became the wife of Louis Bonaparte, King of Holland.

The poor circumstances in which Josephine had thus been placed, by her sudden removal or flight from Martinique, after the breaking out of the rebellion in that island, were less distressing than her subsequent sufferings on her arrival in France. Her husband, M. de Beauharnais, who had figured as one of the early military leaders in the French revolutionary movements, was seized, condemned, and brought to the guillotine; and she narrowly escaped the same fate only by the death of Robespierre, whereupon she was released from confinement. The letter written by M. de Beauharnais to Josephine on the night before his execution is a most affecting document. The following is a translation:—

"Cocquergie, Night of the 7th Thermidor, year 2.

"I have yet a few minutes to devote to affection, tears, and regret, and then I must wholly give myself up to the glory of my fate and to thoughts of immortality. When you receive this letter, my dear Josephine, your husband will have ceased to live, and will be tasting true existence in the bosom of his Creator. Do not weep for him; the wicked and senseless beings who survive him are more worthy of your tears, for they are doing mischief which they can never repair. But let us not cloud the present moments by any thoughts of their guilt; I wish on the contrary to brighten them by the reflection that I have enjoyed the affections of a lovely woman, and that our union would have been an uninterrupted course of happiness, but for errors which I was too late to acknowledge

and atone for. This thought wrings tears from my eyes, though your generous heart pardons me. But this is no time to revive the recollections of my errors and your wrongs. I owe thanks to Providence, who will reward you.

That Providence now disposes of me before my time. This is another blessing for which I am grateful. Can a virtuous man live happy when he sees the whole world a prey to the wicked? I should rejoice in being taken away, were it not for the thought of leaving those I love behind me. But if the thoughts of the dying are presentiments, something in my heart tells me that these horrible butcheries are drawing to a close; that executioners will in their turn become victims; that the arts and sciences will again flourish in France; that wise and moderate laws will take place of cruel sacrifices; and that you will at length enjoy the happiness which you have always deserved. Our children will discharge the debt for their father.

I resume these incoherent and almost illegible lines, which were interrupted by the entrance of my jailors. I have just submitted to a cruel ceremony, which, under any other circumstances, I would have resisted, at the sacrifice of my life. Yet why should we rebel against necessity?—reason tells us to make the best of it we can. My hair has been cut off. I had some idea of buying a part of it, in order to leave to my wife and children an unequivocal pledge of my last recollection of them. Alas! my heart breaks at the very thought, and my tears bedew the paper on which I am writing. Adieu, all that I love! Think of me, and do not forget that to die the victim of tyrants and the martyr of liberty, sheds lustre on the scaffold."

#### BIOGRAPHIC SKETCHES.

JOSIAH WEDGEWOOD.

THIS ingenious and amiable man, to whom England was indebted for many valuable improvements in pottery, was the younger son of a Staffordshire potter, who possessed a small entailed estate. He was born in July 1730, and received from his father a very limited education, and a very small patrimony. At an early period of life he applied himself to his father's profession, which was then limited to the production of only the coarsest kinds of earthenware.

The art of fabricating vessels from clay, which was known to the Egyptians and other nations of antiquity, and also to the Chinese (who made the superior kind called *China-ware* so early as the fifth century), was practised at Burslem and some adjacent places in Staffordshire, in, and perhaps before, the reign of Charles II. The possession of extensive fields of clay and coal, and the unfitness of the soil for agriculture, seem to have been the original causes of establishing the earthenware manufacture in this part of England. At the time mentioned, the art was in a very rude state, the ware being all extremely clumsy, the colours both coarse and very unskillfully applied, the glazing consisting entirely of lead ore, or calcined lead, a substance in a high degree pernicious to human life. Some improvements were introduced about the year 1690 by two brothers from Holland, named Ellers, who settled at Burslem, but were obliged soon after to return to their native country, in consequence of the fumes of their furnaces having led to a quarrel with their neighbours. These improvements were not lost sight of among the Staffordshire potters, and another was in time added by a Mr Astbury, who suggested the admixture of calcined flint with clay, while a greater precision was given to the movements of the potter's wheel by an ingenious mechanic named Alsager. The Staffordshire ware continued nevertheless, at the beginning of the reign of George III., to exhibit little elegance, and to be of very limited utility. The paraphernalia of the tea-table were regularly imported from China. The articles of the dinner-table were generally of metal among the higher ranks, and of wood among the lower. The porcelain which had been produced at Dresden since an early period of the century—the invention of a German chemist named De Botticher—was then little known in Britain. And almost the only ware of a superior order, besides *China*, which had obtained a footing in the country, was an improved kind which for a few years had been imported from France. It was reserved for Mr Wedgwood first to apply effectually the principles of science and of taste to this department of our national manufactures.

The subject of our memoir had entered into business on his own account, in partnership with a Mr Bentley, and, by the assistance of that gentleman, and of an eminent chemist named Chisholme, whom he liberally rewarded, had made considerable improvements in the composition, form, and colour of the common wares, when, in 1763, he attracted general notice to a species of ware, greatly superior in beauty and consistence to any ever before manufactured in England. This new pottery was composed of clay obtained from Devonshire and Dorsetshire, mixed with ground flint, and coated with a vitreous glaze. He called it *Queen's Ware*, in honour of the youthful consort of George III., to whom he presented a service of it, and who became its patroness. By his own taste and that of his partner, a classical elegance was given to this manufacture, which not only rendered it the most beautiful of potteries, but furnished models for a variety of articles in other ma-

terials, so as to exert a considerable influence over the national taste. The demand for the Staffordshire ware increased proportionally, and rendered it an important branch of commerce, both domestic and foreign, and tables in the remotest parts of Europe were in time furnished with elegant services of queen's ware, of great variety of designs. By varying and repeating his experiments in regard to this pottery, Mr Wedgwood discovered modes of making other kinds of fine ware or porcelain, equally elegant and useful. Of these the most important were the following:—1. A species resembling porphyry, Egyptian pebble, and other beautiful stones of the silicious and crystalline kind. 2. *Jasper*, a white porcelain rivaling the productions of antiquity, which soon became known throughout Europe: it possessed properties similar to the stone of the same name, susceptible of a high polish, resisting all the acids, and bearing without injury a very strong fire; together with the singular property of receiving from metallic calces the same colours which those calces impart to glass or enamels in fusion; a distinction possessed by no porcelain of ancient or modern composition. 3. *Basaltes*, a black porcelain *biscuit*,\* which, like the preceding, bore a strong similarity to the natural stone, could receive a fine polish, resist acids, and bear a very strong fire. 4. White porcelain *biscuit*, of a smooth wax-like appearance, of properties similar to basaltes. 5. *Bamboo*, a cane-coloured substance, resembling in its characteristics the kind last described. 6. A porcelain *biscuit*, almost as hard as agate; a property, which, with its impenetrability by acids and every known liquid, makes it peculiarly well adapted for the formation of mortars and other chemical vessels.

In some particular instances, Mr Wedgwood executed works rivaling the highest productions of art. An antique vase, of about ten inches in height, with white figures raised on a dark ground, and of the most admirable composition and workmanship, which had been found in the sixteenth century near Rome, and was supposed to be the cinerary urn of the Emperor Severus, had found its way through the celebrated Barberini cabinet to the museum of the Duchess of Portland, at whose death, we may mention, it was sold to the Duke of Marlborough for nine hundred and eighty guineas. Mr Wedgwood applied his ingenuity to the production of an exact imitation of this antique, and succeeded so well that the duchess purchased it at one thousand guineas, being more than what the original eventually realised in an open sale. This work of art has since been known by the name of the Portland vase. Our artist subsequently obtained subscriptions of fifty pounds each for fifty similar vases, forming an aggregate sum of £2500; but so expensive was the process (five hundred guineas being paid to the modeller alone), that Mr Wedgwood was a loser by the speculation. He also obtained a particular celebrity by the execution of several cameos, a kind of art which no English potter had formerly thought of attempting. One of these represented a slave in chains, with the inscription, "Am not I a man, and a brother?" being intended as an appeal to public feeling against the slave-trade. Of this he distributed several hundred copies gratuitously. Another consisted of a figure of Hope, attended by Peace, Art, and Labour, composed of clay from Botany Bay, to which colony he sent many of them, to show the inhabitants what the materials of their country could produce, and to stimulate their industry. It may be also stated that Mr Wedgwood made great improvements in the potter's lathe, and in the machinery for reducing the clay to powder, and for separating the grosser parts from the fine.

Nor is Mr Wedgwood known only for the improvement of his own art. His studies embraced chemistry and general science, and the world was indebted to him for the invention of a pyrometer, or measurer of great degrees of heat, which, though now superseded by instruments of greater accuracy, displayed a great degree of ingenuity. He had observed that alumina, one of the chief substances employed in his manufacture, became diminished in weight and bulk in proportion to the degree of heat to which it was exposed. There being then no available means of measuring those degrees of heat which exceeded the range of the mercurial thermometer, he applied himself to the construction of an instrument consisting of pieces of clay of determinate sizes, and a graduated apparatus for measuring their bulk with accuracy. One of the pieces was exposed to the heat, and the temperature was judged of by the contraction. An account of the instrument, and of his experiments connected with it, was presented by him, in 1782, to the Royal Society, of which (as well as of the Antiquarian Society) he was a member. His pyrometer, however, has latterly fallen into disuse, in consequence of the extreme difficulty of procuring pieces of clay of uniform composition, and from its having been found that time has an influence on the contraction of the clay pieces, the longer continuance of a low degree of heat producing the same contraction as a higher degree of heat continued for a shorter time.

As a proper consequence of talent exerted on useful and grateful objects, Mr Wedgwood soon realised an ample fortune, part of which he spent in the erection of a mansion at no great distance from his manufac-

\* Biscuit is the original potter's term for ware between the first firing and the glazing, and has naturally come to be used for species like the above which do not require a vitreous coating.

tory, which he named *Etruria*, in allusion to the distinction of that part of ancient Italy in the fabrication of earthenware. He had also the satisfaction of witnessing a prodigious increase in the population and wealth of the district he inhabited, of a great share of which he was the author. The *Potteries*, as the district is now called, embracing an area of eight miles by six, even some years ago, contained fourteen manufacturing towns, and 30,000 inhabitants, being the most populous part of the British empire. The ideas of Mr Wedgwood being all of a liberal character, he became the active promoter of every improvement that he thought would tend to the benefit of the country. By his means, good roads were constructed throughout the district, and he had a principal share in the measures for carrying through Parliament the act for the Grand Trunk Canal, connecting the Trent and the Mersey, in opposition to a powerful landed interest, which at that time had not freed itself from a narrow jealousy of commerce.

In private life Mr Wedgwood was as estimable as in his public character. The qualities of his mind were so remarkably well combined and balanced, that no one seemed to predominate in any great degree over the rest, unless perhaps we are to except the singular power which he possessed, and which had been one of the sources of his success—the invaluable power of concentrating his attention, and keeping it steadily fixed, on one object of pursuit. To uncommon firmness of mind, and independence of spirit, he joined unwearied benevolence, and the elegance of manners, courtesy, and deference, which suited the elevated society with which he was conversant, and the celebrity and consequence he had attained. In his dealings he was not only strictly correct, but refined and delicate. He so far overcame the disadvantages of the want of education, as to speak and write his native language with purity and precision, and to display a well-furnished and cultivated mind. He died greatly lamented, at his house of *Etruria*, in January 1795, leaving two sons, who carried on his business with talent, and to an extent worthy of his descent.

#### ANECDOTES OF AN INFANT SCHOOL.

AN Appendix to the Report of the Edinburgh Infant School for 1832 contains a number of anecdotes designed to show the effects of infant training, as manifested in that seminary, and which offer themselves as a very appropriate illustration of the remarks we lately ventured upon, in the fourth article of a series of papers entitled "How shall we be better?" We have reason to know that these little traits of infant education touched the feelings and convinced the reason of many individuals who had not previously considered the subject: one gentleman, in particular, high in official situation, was not ashamed to confess that they had moved him even to tears. Without further preface, we lay this treat before our readers:—

1. Incidents to show the good effects of exercising Kindness and Consideration for others, in opposition to reckless Mischief, Hardheartedness, and Cruelty; vices which render the lower orders dangerous and formidable.

Two of the children, brothers, about five and four years of age, coming one morning late into school, were to go to their seats without censure, if they could give an account of what they had been doing, which should be declared satisfactory by the whole school, who should decide. They stated separately, that they had been contemplating the proceedings of a large caterpillar, and noticing the different positions of its body as it crossed their path—that it was now horizontal, and now perpendicular, and presently curved, and finally inclined, when it escaped into a tree. The master then asked them abruptly, "Why did you not kill it?" The children stared. "Could you have killed it?" asked the teacher. "Yes, but that would have been cruel and naughty, and a sin." The little moralists were acquitted by acclamation; having, infants as they were, manifested a character, which, were it universal in the juvenile population, would in another generation reduce our penal code to a mass of waste paper, in one grand department of its bulk.

The teacher mentioned to the children one day that he had been occupied about a boy and a girl who had no father or mother, and whose grandfather and grandmother, who took care of them, were bedrid and in great poverty. The boy was seven years of age, too old for the Infant School, but some gentlemen, he said, were exerting themselves to get the boy into one of the hospitals. Here he purposely stopped to try the sympathies of his audience for the girl. He was not disappointed; several little voices called at once, "Oh, master, what for no the lassie too?" He assured them that the girl was to come to the Infant School, and to be boarded with him and Mrs Wright; and the intelligence was received with loud plaudits.

J. J. accused H. S. of having ate up J. J.'s dinner. It was proved by several witnesses that H. S. not only appropriated the dinner, but used force. The charge being proved to the satisfaction of the *jury* (the whole school), the same tribunal were requested by the teacher to decide what should be the consequences to the conduct. One orator rose and suggested, that as H. S. had not yet ate his own dinner, he ought to give it to J. J. This motion, for the children always welcome any reasonable substitute for corporal punishment, was carried by acclamation. When one o'clock

came, and the dinner was handed over, before the eyes of all present, to J. J., H. S. was observed by him to be in tears, and lingering near his own dinner. They were by this time nearly alone, but the teacher was watching the result. The tears were too much for J. J., who went to H. S. threw his arms about his neck, told him not to cry, but to sit down and take half. This invitation was of course accepted by H. S., who manifested a great inferiority of character to the other, and furnished an example of the blindness of the unjust to the justice of retribution, which they always feel to be mere revenge and cruelty. He could not bear to see J. J. even sharing his dinner, and told him with bitterness that he would tell his mother. "Weel, weel," said the generous child, "I'll gie ye'd a' back again." Of course the teacher interfered to prevent this gross injustice, and in the afternoon made their schoolfellows completely aware of the part each had acted. It is not easy to render a character like that of H. S. liberal, but a long course of such practice, for precept is impotent in such cases, might much modify what in after-life would have turned out a selfish, unjust, and unsocial character.

2. Incidents to show the good effects of practically exercising Honesty and Truth—to the end of superseding another branch of criminal jurisprudence.

A penny was found in the play-ground, which had lain so long as to be mouldy and rusty. It was held up for an owner, but claimed by none. "What shall we do with it?" "Keep it, master, keep it." "Why should I keep it; I have no right to it more than any one here." This was puzzling to all, till a little girl, not four years old, stood up and said, "Put it in the box." Many voices seconded this excellent motion, and the master referred it to a show of hands; up went every hand in the school, most of the children showing both hands for a greater certainty, and the penny was put into the subscription-box amid cheers of animation and delight.

Immediately before the vacation in August 1830, three boys plucked a few black currants, which had ripened on the play-ground wall; fruit and flowers being cultivated to exercise self-denial and refinement in the children. One of the boys kept to himself double the quantity which he vouchsafed to each of the other two, but gave a part to a fourth boy, who had seen the transaction, evidently to purchase his silence; but thinking this hopeless, he took back the gift, and struck the boy to give it up, remarking, that as he knew he would tell, he, the speaker, need not lose his berries into the bargain. They all confessed, and expressed their sorrow, except the striker, decidedly in all respects the most guilty, who maintained a bold and hardened countenance. The voice of the school was, however, merciful to them all, which so much affected the last-mentioned offender that he burst into tears. A clergyman, one of the directors, was present, whose eye the boy caught, and instantly brushed away his tears, and joined in the hymn which was sung at the moment. He staid behind the rest, assiduously assisted the master to put away the things, a civility he never showed before, and begged to shake hands with him when he went away.

P. M. was brought to solemn trial, before the whole school, for keeping up a penny of his weekly school-fee. After the trial and award, which were both just and judicious, the teacher asked the school, "How many of us have been tried now?" A voice called out, "J. H. has been tried." This was indignantly denied by J. H. The teacher turning to J. M., asked him if he had ever been tried. He hung his head, and answered, "Yes." "What was it for?" "Master, do you not remember yourself?" "I do; but are you any better of your trial and punishment?" "I've never stolen since, any how." "What was your reason for not stealing?" "I listened to the thing in my breast, and that told me it was a crime."—J. M.'s offence had been watching, all the time of school, a penny-piece which had been dropped under the stove, and secretly appropriating it when the school was dismissed. His confession bore that his first purpose was to buy howls (marbles), but he felt so unhappy that he could not make up his mind to look upon what he should purchase, and formed the singular resolution to expend the money in something eatable, that he might get it out of his sight! This he did, and gave a share to a schoolfellow. He was asked whether his conscience did not upbraid him. He answered, "It did not speak very loud at first; but I grew very unhappy, and was happier after I was tried and punished." His contrite tears moved the compassion of his numerous judges, who wished to have spared him; but this was not admissible in the circumstances, and a few pats on the hand was the form of corporal punishment allotted him. He was sorely tempted, for he confessed that he kept his eye on the penny-piece for two hours before he took it.

A little boy came to school with his hands covered with paint. He applied to the teacher's sister to aid him in his extremity, which she did effectually by dint of hot water and soap. He promised to reward her with a halfpenny whenever he should get one. She, wishing to try him, asked him some days afterwards if he had forgot his promise. He answered, No, but that he had put the first halfpenny he had got into the poor's plate at church. Having soon after got a halfpenny from a lady, he rung the teacher's house-bell, and gave the money to his creditor, who took it, but after some days restored it.

3. Proofs of the success of the System, in its fundamental principle of governing by Love, and not by Fear, and that consistently with the most perfect order and discipline.

The master one day intimated that he wanted a number of articles, of a kind which he enumerated, to illustrate the lessons. He was next day inundated with all sorts of odds and ends, every child bringing with him something—leather, feathers, cloths, silk, stones, wood, glass, &c. &c.

Accidentally saying that he would come and visit his pupils at their own homes, and if he did, how would they entertain him, the question was answered by a burst of hospitality, and the number and variety of the articles of cheer enumerated were too much for his gravity. He observed, however, that *whisky* was not among the temptations offered him, in the competition for the preference of his company.

A parent came one day to the school, expressly to be satisfied on the puzzle, as he said it was to him, how a schoolmaster could render himself the object of love! His own was always the object of terror; and instead of running to him when he appeared, he and his schoolmates went off in the opposite direction with the greatest alertness. His boy, he said, runs to the master whenever he sees him, and is proud to come home and tell that he has shaken hands with Mr Wright, of whom, as well as of Mrs Wright and Maggy (the latter a worthy of three years old, the master's child, who sets an example to the whole school) he never ceases to speak. Mr Wright requested the inquirer to remain, and see how he treated his scholars. He did so, and witnessed the kindness, the cheerfulness, and the fun which never flags, while he saw discipline and obedience at the same time. The children went to the play-ground, and, to the amazement of the visitor, the teacher ran out, crying, "Hare and hounds! hare and hounds!" Taking the first character on himself, he was instantly pursued full cry by the whole pack, round and round the play-ground: at last he was taken, and worried by an immense act of co-operation. In his extremity, he rang his hand-bell for school; instantly the hounds quitted their prey, rushed into school, the door being scarcely wide enough for them, and were within a minute as still as a rank of soldiers, seated in their gallery, and busy with the multiplication table. The visitor went away, with a shrug, muttering, "Na, the like o' that I never saw!"

Many pages might be filled with anecdotes illustrative of the beneficial effects of the system in preventing the numerous fears, follies, envyings, discontents, and prejudices, which render the lower classes so intractable. The superstitious fear of ghosts, witches, &c. is practically removed. A person informed Mr Wright, that as he was crossing a churchyard, not without the habitual dread which from his youth he could not separate from the place, he met a little girl of five years old marching through all alone. "Was she not afraid?" "Not a bit: she said she learned at the Infant School that ghosts and all that is nonsense." All dirty, gross, destructive, selfish, and insolent habits are proscribed, and carefully prevented; and, above all, *whisky* is held up as the greatest of curses to society, and many a lesson is taught of its effects on both mind and body. The children heard, with much indignation, of a crowd in the street insulting a poor Turk—of some boys who teased an idiot—of the mob breaking windows on occasion of the illumination—and of the people maltreating the doctors for their kindness in trying to cure the cholera.

It is unnecessary to give examples of the effect of intellectual practice, as there is less novelty in children being trained to acuteness and sagacity; and much of this is capable of exhibition to the public, which is not possible, on set occasions, with proofs of moral advancement. The results in this department, it may however be mentioned, are most satisfactory.

#### ADVENTURE WITH A MADMAN.

I was called upon in my senior year to watch with an insane student. He was a man who had attracted a great deal of attention in college; he appeared in an extraordinary costume at the beginning of our Freshman Term, and wrote himself down as Washington Greyling, of —, an unheard-of settlement somewhere beyond the Mississippi. His coat and other gear might have been the work of a Chickasaw tailor, aided by the superintending taste of some white huntsman, who remembered faintly the outline of habiliments he had not seen for half a century; it would have been ridiculous if it had not encased one of the finest models of a manly frame that ever trod the earth. With close-curling black hair, a fine weather-browned complexion, Spanish features (from his mother—a frequent physiognomy in the countries bordering on Spanish America), and the port and lithe motion of a lion, he was a figure to look upon in any disguise with warm admiration. He was soon put into the hands of a tailor-proper, and with the facility which belongs to his countrymen, became in a month the best-dressed man in college. His manners were of a gentleman-like mildness, energetic, but courteous, and chivalrous, and unlike most savages and all coins, he polished without "losing his mark." At the end of his first term, he would have been called a high-bred gentleman at any court in Europe. The opening of his mind was almost as rapid and extraordinary. He seized every thing with an ardour and

freshness that habit and difficulty never deadened. He was like a man who had tumbled into a new star, and was collecting knowledge for a world to which he was to return. The first in all games, the wildest in all adventure, the most distinguished even in the elegant society for which the town is remarkable, and unfailingly brilliant in his recitations and college performances, he was looked upon as a sort of admirable phenomenon, and neither envied nor opposed in any thing. I have often thought, in looking on him, that his sensations at coming fresh from a wild western prairie, and at the first measure of his capacities with men of better advantages, finding himself so uniformly superior, must have been stirringly delightful. It is a wonder he never became arrogant; but it was the last foible of which he could have been accused.

We were reading hard for the honours in the senior year, when Greyling suddenly lost his reason. He had not been otherwise ill, and had apparently in the midst of high health gone mad at a moment's warning. The physicians scarce knew how to treat him. The confinement to which he was at first subjected, however, was thought inexpedient, and he seemed to justify their lenity by the gentlest behaviour when at liberty. He seemed oppressed by a heart-breaking melancholy. We took our turns in guarding and watching with him, and it was upon my first night of duty that the incident happened which I have thus endeavoured to introduce. It was scarce like a vigil with a sick man, for our patient went regularly to bed, and usually slept well. I took my "Lucretius" and the "Book of the Martyrs," which were just then my favourite reading, and with hot punch, a cold chicken, books and a fire, I looked forward to it as merely a studious night; and as the wintry wind of January rattled in at the old college windows, I thrust my feet into slippers, drew my dressing-gown about me, and congratulated myself on the excessive comfortableness of my position.

It had snowed all day, but the sun had set with a red rift in the clouds, and the face of the sky was swept in an hour to the clearness of—I want a comparison—your own blue eye, dear Mary! The all-glorious arch of heaven was a mass of sparkling stars. Greyling slept, and I, wearied of the cold philosophy of the Latin poet, took to my "Book of Martyrs." I read on, and read on. The college clock struck, it seemed to me, the quarters rather than the hours. Time flew: it was three. "Horrible! most horrible!" I started from my chair with the exclamation, and felt as if my scalp were self-lifted from my head. It was a description in the harrowing faithfulness of the language of olden time, painting almost the articulate groans of an impaled Christian. I clasped the old iron-bound book, and rushed to the window as if my heart was stifling for fresh air. Again at the fire. The large walnut faggots had burned to a bed of bright coals, and I sat gazing into it, totally unable to shake off the fearful incubus from my breast. The martyr was there—on the very hearth—with the stakes scornfully crossed in his body; and as the large coals cracked asunder and revealed the brightness within, I seemed to follow the nerve-rendering instrument from hip to shoulder, and suffer with him pang for pang, as if the burning redness were the pools of his fevered blood. "Aha!" It struck on my ear like the cry of an exulting fiend. "Aha!" I shrank into the chair as the awful cry was repeated, and looked slowly and with difficult courage over my shoulder. A single fierce eye was fixed upon me from the mass of bed-clothes, and, for a moment, the relief from the fear of some supernatural presence was like water to a parched tongue. I sank back relieved into the chair. There was a rustling immediately in the bed, and, starting again, I found the wild eyes of my patient fixed still steadfastly upon me. He was creeping stealthily out of bed. His bare foot touched the floor, and his toes worked upon it as if he was feeling its strength, and in a moment he stood upright on his feet, and, with his head forward and his pale face livid with rage, stepped towards me. I looked to the door. He observed the glance, and in the next instant he sprang clear over the bed, turned the key, and dashed it furiously through the window. "Now!" said he. "Greyling!" I said. I had heard that a calm and fixed gaze would control a madman, and with the most difficult exertion of nerve I met his lowering eye, and we stood looking at each other for a full minute, like men of marble. "Why have you left your bed?" I mildly asked. "To kill you!" was the appalling answer; and in another moment the light-stand was swept from between us, and he struck me down with a blow that would have felled a giant. Naked as he was, I had no hold upon him, even if in muscular strength I had been his match; and with a minute's struggle I yielded, for resistance was vain. His knee was now upon my breast, and his left hand in my hair, and he seemed, by the tremulousness of his clutch, to be hesitating whether he should dash my brains out on the hearth. I could scarce breathe with his weight upon my chest, but I tried, with the broken words I could command, to move his pity. He laughed, as only maniacs can, and placed his hand on my throat. Shall I ever forget the fiendish deliberation with which he closed those feverish fingers? "Greyling!—for God's sake!—Greyling!" "Die!" said he. In the agonies of suffocation I struck out my arm, and almost buried it in the fire upon the hearth. With an expiring thought, I grasped a handful of the red-hot coals, and had just strength sufficient to press them hard against his side.

"Thank God!" I exclaimed with my first breath, as my eyes recovered from their sickness, and I looked upon the familiar objects of my chamber once more. The madman sat crouched like a whipped dog in the farthest corner of the room, gibbering and moaning, with his hands upon his burnt side. I felt that I had escaped death by a miracle. The door was locked, and, in dread of another attack, I threw up the window, and to my unutterable joy the figure of a man was visible upon the snow near the outbuildings of the college. It was a charity student, risen before day to labour in the wood-yard. I shouted to him, and Greyling leapt to his feet. "There is time yet!" said the madman; but as he came towards me again, with the same panther-like caution as before, I seized a heavy stone pitcher standing in the window-seat, and, hurling it at him with a fortunate force and aim, he fell stunned and bleeding on the floor. The door was burst open at the next moment, and, calling for assistance, we tied the wild Missourian into his bed, bound up his head and side, and committed him to fresh watchers. We have killed bears together at a Missouri Salt Lick since then; but I never see Greyling with the smile off his face, without a disposition to look around for the door.—*New Monthly Magazine*, Dec. 1834.

#### ORIGIN AND NATURE OF MONEY.

AFTER each man had begun to occupy himself with a separate trade, the produce of his labour would exceed his consumption. Of the commodity he made he would have more than enough, while of the commodities made by others he would be deficient. As every individual would be similarly situated, the utility of a mutual exchange of surpluses would soon be apparent. Those who pursued the chase might be overstocked with venison, which they would be glad to exchange for a supply of fish; or the maker of bows and arrows might be willing to make an exchange with the maker of some domestic utensil, a wooden bowl, an earthen pot, or stone-hatchet. Barter would become the general fashion of the tribe; from a community of producers, they would, by the introduction of divisions of employment, become a community of exchangers, entering on the first stage of commercial prosperity.

Barter alone, however, would soon be found to be accompanied with two inconveniences: first, it might not be always easy to find a person who had the commodity you wanted, and who was willing to exchange it for your commodity; or, secondly, the commodities might be of unequal value, one having been produced by greater labour than the other. In either case you would be at a stand, no business could be transacted. But the nature of your difficulties will appear more striking by a practical example.

You are, we will suppose, a maker of wooden spoons, and wish to exchange them for animal food. You go to the butcher; but unluckily he is not in want of spoons, he wants bread: there is the baker, however, in want of spoons, but you do not want bread. How inconvenient!—what a miserable state of society, in which every one has too much of one thing and too little of another, and no means of neutralising your respective necessities!

Let us suppose that matters are not quite so untoward, and you find a butcher in want of spoons; but this may not be enough: he may be a carcass-butcher, and will only exchange his ox or his sheep entire, whereas you are only in want of a joint at most, or perhaps, if a bachelor, a couple of chops or a steak. What is to be done? This is a second disadvantage of a state of barter. Each individual of the community has applied himself to his calling; but the difficulties attending the exchange of the surplus of his industry, for the precise articles he wants, and the precise quantity of each, are almost insurmountable.

To obviate these impediments to exchange, let us suppose a certain material is discovered, that is divisible into parts, portable and durable; it is not necessary this new article should be consumable, either as meat, drink, or clothes; but simply that it shall be prized alike by every member of the society, and every one be willing to exchange his labour or its produce for the possession of a portion of it. This discovery removes all the obstacles previously existing to exchanges. A medium has been found universally current, that passes with every person, and in every place; and the altered circumstances of the spoon-maker in consequence may be easily made apparent. First, it is not necessary he should exchange his stock of spoons directly with the butcher or baker; any other person will answer equally well, provided he can obtain in return what he deems an equitable portion of the new material. Having done this, he has choice of three modes of procedure: first, as the new material is not perishable, it may be stored up for future occasions; or secondly, as it is portable, in lieu of being exchanged in the neighbourhood, it may be conveyed to a more distant part, where better bargains may be obtained; or thirdly, as it is divisible, it may, in lieu of being all exchanged for one article, meat, for example, a part of it may be exchanged for meat, a part for bread, and a part for beer.

It is almost unnecessary to remark, that the material which affords so many conveniences to the spoon-maker, and to every other producer, is MONEY, that universal instrument of exchange, which every civil-

ised community has adopted for measuring the value of labour, and all its productions.

The introduction of money had two important consequences; first, it gave rise to prices, or the fixing the quantity or worth of every commodity in the new standard of value; and secondly, it promoted the formation of a new class in society called merchants, who were not the producers, but the buyers of commodities, to resell in places where they were in greatest demand, or in quantities suited to the wants of the consumers.

These changes made no alteration in the principle of barter previously existing; it only facilitated the operation, by the introduction of a new agent. The object of barter was to equalise the possession of commodities, according to the wants of each; and the object of buying and selling by the invention of money is precisely the same: in both cases consumption is promoted, and value for value, in the estimate of the parties, exchanged; only in barter, as just explained, the commodity can neither be so readily obtained, nor in the exact quantity suited to individual wants.

The instrument first used as money was not so perfect as it subsequently became, and consisted probably of that commodity which constituted the staple wealth of the community. Thus in the early ages cattle are frequently mentioned as the measure of value. Homer says the armour of Diomed cost only nine oxen, but that of Glaucus one hundred oxen. When mankind became agricultural, corn was substituted for cattle; remains of corn-money are still to be found in old college leases and agreements, that stipulate the payment of rents and wages in that commodity. The English kings even of the Tudor race, under the privilege of purveyance, claimed a large portion of the royal income in kind; that is, in victuals and provisions of all sorts. Salt is said to be a common medium of exchange in Abyssinia; a species of shells in some parts of India; hides or dressed leather in some other countries; and Adam Smith relates, that in his time it was not uncommon in a village of Scotland for workmen to carry nails instead of money to the baker's shop or alehouse. The primitive money of the Spartans was of iron; of the Romans, copper; but gold and silver have been adopted as the common instrument of commerce, among all rich and civilised communities.

Gold and silver being more valuable than the other metals, are better adapted to the uses of money. Iron and copper, like cattle or corn, are too bulky representatives of value; they are deficient in the essential quality of portability; whereas a smaller portion of the precious metals measuring the price of commodities, may be more easily carried about the person, or from place to place. At first they seem to have been used in the mass, in bars or ingots, without stamp or coinage. The party having agreed about the quantity to be given, that quantity was then weighed off. Abraham weighs to Ephron the four hundred shekels of silver, which he had agreed to pay for the field of Machpelah.

The use of the metals in this state would be attended with two inconveniences; besides the trouble, mistakes and disputes would occur in the weighing of them; and, secondly, there would be the assaying, or testing their fineness. Submitting them to both processes would render a market, or even a single sale or payment, a lengthy and troublesome business. Undoubtedly the latter point, or the ascertaining the degree of purity of the metals, would require the greatest stretch of science. Fortunately means were discovered for superseding the necessity of both weighing and assaying. According to Goguet, the fabrication of coins, or the impressing pieces of metal with a stamp, indicating their weight and fineness, belongs to the remotest period of history; and when this was done under the authority of the state, not only were commercial dealings vastly facilitated, but the most effective guarantee introduced against fraud and contention.

By the invention of coins, the precious metals attained the greatest improvement of which they appear susceptible as the general instrument of exchange. The qualities most essential to money have been already partly indicated, and are, 1st, That it should be divisible into portions of greater or less value—without this it would be a convenience for the rich and none for the poor; 2d, That it should admit of being kept or hoarded without depreciating in value, otherwise no one would exchange commodities for money unless he expected to be speedily able to re-exchange it for something else; 3d, That it should, by possessing great value in small bulk, be easily portable from place to place; 4th, That it should be of uniform denomination—in other words, that a piece of coin, a sovereign or shilling for instance, should represent the same quantity of metal in weight and fineness; without this quality the intrinsic value of different sovereigns and shillings could not be known without scales and tests; 5th, That it should possess stability of value—as money is the standard or measure by which the worth of all other commodities is estimated, it is as essential that its own value should be invariable, as that a yard measure or a pound weight should be invariable; without this most essential requisite, it in fact ceases to be money, and introduces the greatest derangement in the value of property and mercantile transactions.

With the exception of the last, the precious metals possess the other qualities desirable in money in great perfection; and they possess the last in greater per-

fection, perhaps, than any other material that could be substituted in their place. Money is itself a commodity, possessing intrinsic value, and its price is influenced by the greater or less quantity in circulation. Fluctuations in value from this cause have operated slowly, and at distant intervals, and much less so on gold and silver than on any other articles of use and consumption. The greatest change in their value was caused by the discovery of the American mines in the sixteenth century, when the price of silver in Europe fell at least two-thirds. Plate in consequence became much cheaper, and a service might be purchased for one-third of the coin or labour it before demanded. So far it was a social convenience, but as an instrument of exchange, the precious metals became less valuable. It became necessary to load the person with a greater weight of them, and carry three shillings in the pocket to make a purchase, where one would have before sufficed.

Causes, however, of an opposite description, are considered by many to have been in gradual operation, and that the tendency of gold and silver has been to rise in value. That such a rise is in progress, has been inferred from the following considerations:—1st, The unsettled state of South America during the last twenty years, and consequent interruption to the working of the gold and silver mines; 2d, The increased consumption of bullion in plate and other articles of luxury, from the increase of wealth; 3d, The increased demand for the precious metals as a measure of value, owing to the increase of population, commerce, and commodities; 4th, The general substitution of a metallic for a paper currency in England, America, and the continental states. All these causes, by increasing the demand, must have increased the value of bullion; unless its tendency to rise has been counteracted by the cotemporary effect of other causes, especially the increased productiveness of the Russian mines, and the less disposition to hoard treasure, formerly so prevalent in Europe, and rendered necessary by the insecurity of property, and the non-establishment of banks of deposit.—*Wade's History of the Middle and Working Classes*.

#### STREET MUSIC.

[From Wordsworth's Poems.]

An Orpheus! an Orpheus! Yes, Faith may grow bold,  
And take to herself all the wonders of old:  
Near the stately Pantheon you'll meet with the same,  
In the street that from Oxford hath borrowed its name.

His station is there—and he works on the crowd;  
He sways them with harmony merry and loud—  
He fills with his power all their hearts to the brim—  
Was aught ever heard like his fiddle and him?

What an eager assembly!—what an empire is this!  
The weary have life, and the hungry have bliss;  
The mourner is cheered, and the anxious have rest;  
And the guilt-burthened soul is no longer oppressed.

As the moon brightens round her the clouds of the night,  
So he, where he stands, is the centre of light;  
It gleams on the face, there, of dusty-brown Jack,  
And the pale-visaged baker's with basket on back.

That errand-bound 'prentice was passing in haste—  
What matter!—he's caught, and his time runs to waste:  
The newsmen are stopped, though he stops on the fret,  
And the half-breathed lamplighter—he's in the net!

The porter sits down on the weight which he bore;  
The lass with her barrow wheels hither her store—  
If a thief could be here, he might pilfer at ease—  
She sees the musician—'tis all that she sees!

He stands, backed by the wall—he abates not his din—  
His hat gives him vigour, with boons dropping in  
From the old and the young—from the poorest—and  
there!

The one-pennied boy has a penny to spare.  
Oh, blest are the hearers, and proud be the band,  
Of the pleasure it spreads through so thankful a band;  
I am glad for him, blind as he is! all the while—  
If they speak 'tis to praise, and they praise with a smile.

That tall man, a giant in bulk and in height,  
Not an inch of his body is free from delight:  
Can he keep himself still, if he would? Oh, not he!  
The music stirs in him like wind through a tree.

Mark that cripple, who leans on his crutch, like a tower  
That long has lean'd forward, leans hour after hour!  
That mother, whose spirit in fetters is bound,  
While she dandles the babe in her arms to the sound.

Now, coaches and chariots! roar in a stream—  
Here are twenty souls happy, as souls in a dream:  
They are deaf to your murmurs—they care not for you,  
Nor what ye are flying, nor what ye pursue.

#### DOMESTIC SERVANTS.

The number of female servants in Britain is upwards of 700,000; and if their ages were calculated, we do not doubt it would be found that two-thirds of all the British damsels between the ages of 15 and 25, are domestic servants. Yet notwithstanding this immense supply of female labourers, the demand is superior to it; their wages rise, and their prosperity is strikingly evinced by their elegant garments and costly decorations. Male servants are not so numerous, yet the demand is superior to the supply; and the services of a footman gratuitously educated at the parish school, already command an equal remuneration, and promise to command a higher price than the services of a curate, who has expended large sums in the acquirement of classic lore at the universities.—*Browning's Political and Domestic Condition of Great Britain*.

Column for Country People.  
GARDENING.

A FEW weeks ago, I addressed a word of friendly advice to cottagers and others on the subject of cleanliness, when occasion was taken to advert to the benefit which would be derived by the peasantry from cultivating and attending to gardens near their places of residence. This is a subject upon which a great deal may be said, and I now return to it for the purpose of introducing to the notice of my numerous readers in the country, a small and exceedingly useful manual of instruction on gardening, both in principle and practice, which has lately been published, and may be had from any bookseller in England or Scotland. It is entitled "The Hand-Book of Gardening;" the author is James Rennie, a Scottish gentleman resident in London, who has written a variety of excellent treatises on subjects connected with natural history, adapted for popular instruction. The present compendious treatise on gardening appears to have been composed at the suggestion of J. Stuart Menzies, Esq. of Closeburn, in Dumfriesshire, the patriotic originator of a plan for introducing a system of instruction on gardening into the common course of education at our parochial schools—a measure which we sincerely hope will in time be brought into operation, along with the practice of letting small patches of land to the industrious among the peasantry.

"The present work (says Mr Rennie) was undertaken in compliance with the request of Mr Menzies, who has since been actively engaged in carrying his proposals into operation, by means of district patriotic associations of gentlemen interested in its success. And, surely, nothing could be more desirable than to see the gardens of our cottagers and tradesmen throughout the land, neatly laid out, skillfully cultivated, yielding useful produce, and at the same time tending to improve the national taste, and elevate the national feeling, by means of the cheap luxuries of flowers and fruits.

When I was in Switzerland, in the autumn of 1832, nothing surprised me more, particularly in Berne and other Protestant cantons, than the extraordinary neatness of the gardens attached to cottages and farm-houses, far surpassing in this respect any thing I had ever seen even in Holland and Belgium, much less in England. Scotland, I am sorry to say, is, with a few rare exceptions, around Paisley and other manufacturing districts, quite out of the question, being in this respect little better than Ireland or France. As the neatness of gardens is always one sure test both of the industry and comfort of the owners, leaving elegance of taste out of consideration, much of what is observable in Switzerland may be ascribed to this cause, arising in part from the self-importance produced by independence. It may, however, be also ascribed in part to education, instruction in gardening and agriculture being a prominent branch in most of the Swiss schools, as well as in Prussia and Württemberg. I much fear it will be long before we reach, to any extent, this important point of improvement in the wretchedly defective modes of education prevalent in Britain. God forbid that I should depreciate the establishment of parish schools in Scotland, an establishment which has in part tended to raise the character of my countrymen so high in all nations of the world; but I surely may be allowed the remark, that though the Scottish parish schools were admirable for the time when they were established, the branches taught there are now altogether behind the spirit of the age, and quite at a stand still, leaving many of the essential branches of education to the chance lectures delivered at Mechanics' Institutions; and even though this is better than nothing, little can be, in the nature of things, well taught by means of lectures alone.

Gardening is one of the important subjects of education which could not be taught by any course of lectures, how able soever they might be; but the experience of the Swiss proves, that it could effectually be taught in schools. The worst of it is, that most people think they understand gardening intuitively, without instruction, in the same way as every body pretends to understand medicine. I recollect that a little girl, six years old, once undertook to prescribe for a cough which I had; and, I doubt not, the most ignorant labourer thinks he knows how to cultivate his garden without being teased with learning chemistry and vegetable physiology, though he and the prescribing little girl are very much upon a par.

As something like the allotment system has long been tried beneficially in Scotland, in the pieces of land for potatoes, let or given by farmers to village

mechanics, so has something like the instruction system been tried, though unsuccessfully, in England. Under the patronage and at the expense of the late Duchess and the present Duke of Somerset, the well-known Joseph Lancaster commenced a school at Maiden Bradley, a leading principle of the plan of which was to instruct the scholars in gardening and farming, by setting them to cultivate an extensive waste in the vicinity. The scheme, however, proved unsuccessful, owing, it is supposed, to the master's ignorance of cultivation."

So much for Mr Rennie's design. The following passages will give an idea of the style of the work:—"The science of gardening is founded on reasons for supplying particular crops with certain kinds of food, and of affording them proper exposure and due shelter, and on the causes and effects of the several circumstances attending these. In order to understand the nature of the food or nourishment of growing crops, as well as the mode of their feeding, it will be necessary to examine the mouths and other parts of garden plants, such as turnips, gooseberry trees, or lilies.

Unlike the mouths of animals, which are placed on the upper part of the body, the mouths of plants are placed at the lower part, in the root; though not in the body or the crown of the root, but at the very tips or points of the root fibres. At the very tip or point of every root fibre there is a little mouth, or rather a spongy sucker; and though we cannot discover any opening there, we can always prove that water and other fluids are sucked up by these root tips (which are called *spongelets*) in the same way, perhaps, as ink is sucked up by blotting paper.

The largest spongelets I ever saw were in the root tips of a willow which had shot into a pond at Woolwich. They are also large in evergreens, in gooseberry trees, and in beans. In the turnip they are to be sought for only in the small fibres at the tail; and care must be taken not to confound the tips of the claspers in ivy with the spongelets, which are always under ground, and never on the bark of trees, as is ignorantly supposed. Ivy therefore does not, as is supposed, injure trees by feeding on them, nor does it render houses damp, but the contrary, by keeping off rain. The openings of the spongelets which are the sucking mouths of plants, are so very small that they will admit no liquid thicker than water, and no solid substance, however fine.

It will be obvious from this that all manure must be made as thin as water before it can be sucked up by the spongelets; and hence even the drainings of stables and dunghills, which are very rich in nourishment, are too rich for plants; that is, too thick to pass the small openings till they be largely mixed with water, without which they will choke the growing crops instead of feeding them. When the leaves become yellow from this cause, they are usually said to be burnt by the heat of the manure. In the same way, the finest soot or the finest powdered lime, bones, or shells, cannot till dissolved in water get through the spongelets into any plant.

It is on this account, that, in transplanting, the tips of the root fibres are pressed and obstructed by the earth of their new situation, and are therefore unable to feed till they can place themselves in similar freedom in the earth as they had before transplanting. When they are bent or obstructed in this way, their growth is also prevented, and new fibres spring from other parts of the root, out of the materials which would otherwise have enlarged the old fibres. Plants thus acquire a greater number of mouths, the oftener they are transplanted, a circumstance usually acted on by nurserymen, who shift their young trees and other plants for the purpose of multiplying their root fibres, and consequently of strengthening the plants, by giving them a greater facility of feeding from having more mouths to feed with. This is also important in cultivating cabbages and greens.

The tips or points of the root fibres, where the mouths of plants are placed, cannot travel far like animals in search of food, and being fixed to one spot, can only take such food as they find there. The indispensable ingredient in all plant food is water to dissolve the other ingredients, and enable them to pass into the root tips in the same way as the fluid in an animal's mouth is indispensable to mix with solid food when chewed for rendering it easy to swallow. But water alone will not nourish any plant well, as has been erroneously asserted.

Another indispensable ingredient in plant food is air—the common air—which, when mixed with water, as it always more or less is, gives it that agreeable taste which boiling renders rapid by driving off the air. It is on this account that the watering of a garden in dry weather, by throwing over it buckets of water from a pump, as I have sometimes seen my neighbours in Kent do, is of far less use than if the

pump-water was thrown through the fine rows of a watering-pot, so that each drop might mix with and carry down a portion of air. Rain, again, which falls from a considerable height, must carry down a great deal of air, and hence rain is found to fertilise more than any sort of watering by hand.

Besides common air, the water or moisture in garden soils is always more or less mixed with a substance termed by chemists, *Humus*, which is the chief nutritive ingredient in dung, stable drainings, rotted leaves, peat, turf, and dark coloured loam. Humus when pure will not mix with water, and plants cannot of course feed upon it till it be mixed and thinned down. This is effected by combining humus with lime, potash, or ammonia, when it readily dissolves in water. It would appear that plants feed most heartily in the daytime and in open places, being most probably influenced to this by light. Artificial watering may be supposed on this account to be most beneficial early in the morning, just as the plants are commencing their breakfast.

The thickened part of plants is called the pulp, to distinguish it from the crude watery sap, with which in books it is very commonly confounded. The pulp is of similar use to plants in promoting their growth, as the blood is of use in animals. The pulp, which is chiefly composed of the carbon or charcoal derived from the humus of the sap, is of a dark blue colour; but the transparent tissue of the leaf in which it is enclosed being more or less yellow, the combination of the two colours forms green, as blue paint mixed with yellow paint forms green. When the pulp is deficient, the leaves therefore become yellow.

Several inferences may be drawn from these facts. The change, for example, of sap into pulp cannot take place in the dark, sunlight being indispensable to open the pores; and hence plants growing under thick trees, or under any thing that obstructs the sun's light, cannot sufficiently effect this important change, and the pulp being in consequence only prepared in small quantity, the plants become slender, yellowish, and sickly, for want of due nourishment. It is ignorantly said that the trees *draw* them. Plants in pots, in an ill-lighted window, suffer the same inconvenience, and bend their heads as much as possible towards the light; not that they have any knowledge of the use of it, any more than a hungry infant has of the use of the milk which it greedily sucks, but because, in the part most exposed to the light, a greater quantity of pulp is formed, which renders it firmer, heavier, and shorter, than the part less exposed, whose laxness causes it to give way and lengthen, on the same principle that a piece of somewhat moist paper will bend when exposed to the heat of a fire, from the side nearest the fire losing its moisture and contracting. When the change of sap into pulp is in any way hindered or prevented, as by shade or by moisture, the leaves of the plants become yellow, as when plants in pots have more water given them in saucers or otherwise than the sunlight can cause to pass off; or when, for want of pot room, they become root-bound, and the root tips have not space to feed. By tying the leaves of lettuce near the top, the innermost leaves are kept from the light, and hence little or no pulp being formed there, they are rendered white, crisp, and tender, as cabbages and savoys grow of their own accord without tying, though tying will hasten the process. This is called *blanching*, which means "whitening."

In all cases, the more plants are exposed to the light, the more hardy they will be, provided they be not gorged with too watery food; and the less light they have, the more feeble, sickly, pale, and yellow, they will be. Light from above, also, is greatly better than side light. The advantages of wide planting in most cases will therefore be obvious; for if potatoes, cabbages, or other plants, are crowded together, they become (at least at their sides) nearly as much shaded from the light by each other, as if growing under trees."

The foregoing may be considered a sufficient specimen of the matter of which the Hand-Book of Gardening is composed. It could have been wished that the author had in one or two instances been a little more explanatory with regard to some things connected with the science of which he treats. For instance, in speaking of *grafting*, he does not explain why that process is necessary in order to have good fruit from trees. I venture to say that there is not one in ten thousand who can tell the reason for this, and I do not remember of ever seeing any work which gave a proper explanation of so curious a fact in natural philosophy. There can be no doubt that the intelligent author will supply this defect in his next edition.

The present number of the *JOURNAL* completes the third volume of the work, for which a title-page and copious index are prepared, and may be had on application to the publishers or their agents, at the usual price of a number.

END OF THE THIRD VOLUME.

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